

**Notice of Allowability**

Application No.

10/734,485

Examiner

Ana M. Fortuna

Applicant(s)

RAWSON ET AL.

Art Unit

1723

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to letter of 6/16/06.
2. ☒ The allowed claim(s) is/are 1-6,12-14 and 16-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                 |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>6/23/06</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                        |
|   | 9. <input checked="" type="checkbox"/> Other <u>See Continuation Sheet</u> .                                |

Continuation of Attachment(s) 9. Other: drawings filed on 12/11/03 are approved by the draftman..

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jason K. Klindtworth on 6/23/06.

The application has been amended as follows:

1. (Currently amended) a water softener comprising:

a cation exchange resin tank fluidly couple for discharging spent brine comprising monovalent and divalent ions;

a fluid mixer valve couple to the resin tank and to a water tank to dilute the spent brine to a desire concentration of a regenerant salt;

an ion-separation device fluidly couple to the fluid mixer valve to received the dilute spent brine and separate the diluted spent brine into first and second streams, the first stream substantially comprising monovalent inns and the second stream substantially comprising divalent ions; and

a reverse osmosis (RO) membrane fluidly couple to the ion-separation device to receive the first stream from the ion-separation device and produce a concentrate stream of monovalent ions and substantially demineralized water [to be collected];

wherein the concentrate stream of monovalent ions is collected for reuse as [the] regenerant salt.

3. (Currently amended) the water softener of claim 1 [wherein the regenerant salt from the RO membrane is collected in a brine storage tank for reuse for cation exchange resin regeneration] further comprising a tank for the collection of the regenerant salt, wherein the tank is connected to the cation exchange resin tank for regenerating said resin.

Cancel claims 9 and 15.

In claim 12, line 1, delete 9, and after water, insert - - from said RO membrane- -

#### **Reasons for allowance**

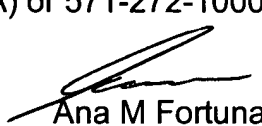
2. The following is an examiner's statement of reasons for allowance: claims 1-6, 12-14, and 17-21 are allowed over the prior art of record. The combination of elements in the water softener apparatus and process steps of claim 17 and dependent claims as whole are not suggested in the prior art of record. The prior art teaches the separation monovalent and divalent ions from spent brine, however, combining the dilution and further concentration of monovalent ions to produce a regenerant salt stream, and recirculation back to the resin tank, is not disclosed or suggested in the prior art of record. Advantages to the dilution step, and further concentration of the monovalent salts are discussed in Applicant's remarks of 5/19/06.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Ana M Fortuna  
Primary Examiner  
Art Unit 1723

AF  
June 23, 2006